

No. TNS068276

Authorization to discharge under the
National Pollutant Discharge Elimination System

Issued By

**Tennessee Department of Environment and Conservation
Division of Water Pollution Control
401 Church Street
6th Floor, L & C Annex
Nashville, Tennessee 37243-1534**

Under authority of the Tennessee Water Quality Control Act of 1977 (T.C.A. 69-3-101 et seq.) and the delegation of authority from the United States Environmental Protection Agency under the Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 (33 U.S.C. 1251, et seq.) and the Water Quality Act of 1987, P.L. 100-4,

Discharger: **The City of Memphis, located in Shelby County, Tennessee,**

is authorized to discharge storm water runoff, in accordance with the following storm water quality management program(s), effluent limitations, monitoring requirements and other provisions as set forth in Parts I through IX herein, from all portions of the MS4, owned or operated by any permittee listed above, to Waters of the State of Tennessee.

This permit shall become effective on: June 1, 1996

This permit shall expire on: May 31, 2001

Issuance date: May 31, 1996

Paul E. Davis, Director
Division of Water Pollution Control

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PART I

DISCHARGES AUTHORIZED UNDER THIS PERMIT

A. Permit Area

This permit covers all areas located within the corporate boundary of The City of Memphis, located in Shelby County, Tennessee.

B. Authorized Discharges

Except for discharges prohibited under Part I(E), this permit authorizes existing or new storm water point source discharges to Waters of the State of Tennessee from those portions of the Municipal Separate Storm Sewer System (MS4) owned or operated by The City of Memphis.

C. Permittees

The following parties are permittees subject to the limits and conditions of this permit:

The City of Memphis, Shelby County, Tennessee

Note: References to “permittee” in this permit include each of the parties cited above.

D. Responsibilities of Permittees

1. Each permittee is individually responsible for the following:

- a. compliance with permit conditions relating to discharges from portions of the MS4 where they are the operator;
- b. implementing the Storm Water Management Program (SWMP) on portions of the MS4 where they are the operator;
- c. where permit conditions are established for specific portions of the MS4, the permittee need only comply with the permit conditions relating to those portions of the MS4 for which they are the operator; and,
- d. a plan of action to assume responsibility for implementation of storm water management and monitoring programs on their portions of the MS4 should inter-jurisdictional agreements allocating responsibility between permittees be dissolved or in default.

2. Each permittee is jointly responsible for:

- a. submission of annual reporting requirements as specified in Part VII(A);
- b. collection of monitoring data as required by Part VI, and according to such agreements as may be established between the permittees; and,

- c. insuring implementation of system-wide management program elements, including any system-wide public education efforts.
3. Specific permittees are jointly responsible for compliance with the permit on portions of the MS4 where:
 - a. operational authority or authority to implement SWMP's over portions of the MS4 have been transferred from one permittee to another in accordance with legally binding interagency or inter-jurisdictional agreements. Both the owner and operator are jointly responsible for permit compliance on those portions of the MS4 referenced in such agreements unless specific responsibility provisions have been otherwise outlined in the agreements.

E. Limitations on Coverage

The following discharges are not authorized by this permit:

1. Discharges of non-storm water, except where such discharges are as follows:
 - a. in compliance with a separate NPDES permit (or the discharger has applied for such a permit); or,
 - b. identified by and in compliance with 40 CFR 122.26(d)(2)(iv)(B)(1); and,
2. Discharges of materials resulting from a spill, except emergency discharges required to prevent imminent threat to human health or to prevent severe property damage, provided reasonable and prudent measures have been taken to minimize the impact of the discharges.

PART II

DEFINITIONS

Definitions contained in the Tennessee Water Quality Control Act and Federal NPDES rules apply where one is not specified below. Unless otherwise specified in this permit, additional definitions of words or phrases used in this permit are as follows:

- A.** “Best Management Practices”, or “BMP’s” means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMP’s also include treatment requirements, operating procedures, and practices to control storm water runoff.
- B.** “CWA” means Clean Water Act, also referred to as “the Act” (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. 6-483 and Pub. L. 97-117, 33 U.S.C. 1251, et seq., as amended by the WQA of 1987, P.L. 100-4, the “Act.”

C. “Director” means the Director of the Tennessee Division of Water Pollution Control, or an authorized representative of that position.

D. “Discharge” for the purpose of this permit, unless indicated otherwise, refers to discharges from the Municipal Separate Storm Sewer System (MS4).

E. “Flow-weighted composite sample” means a composite sample consisting of a mixture of aliquots collected at a constant time interval, where the volume of each aliquot is proportional to the flow rate of the discharge at the time of sampling.

F. “Illicit connection” means any man-made conveyance connecting a non-storm water discharge directly to a municipal separate storm sewer system.

G. “Illicit discharge” means any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and other discharges as listed in APPENDIX 3 of the Rationale referencing 40 CFR 122.26(d)(2)(iv)(B)(1).

H. “Industrial Land Use” means land utilized in connection with manufacturing, processing, or raw materials storage at facilities identified under 40 CFR 122.26(b)(14).

I. “Landfill” means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.

J. “Large Municipal Separate Storm Sewer System” means all municipal separate storm sewers that are either:

- (i) located in an incorporated place (city) with a population of 250,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and G of 40 CFR Part 122); or,
- (ii) located in the counties with unincorporated urbanized populations of 250,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties (these counties are listed in Appendices H and I of 40 CFR Part 122); or,
- (iii) owned or operated by a municipality other than those described in paragraph (i) or (ii) and that are designated by the Director as part of the large municipal separate storm sewer system.

K. “Medium Municipal Separate Storm Sewer System” means all municipal separate storm sewers that are either:

- (i) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and G of 40 CFR Part 122); or,
- (ii) located in the counties with unincorporated urbanized populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties (these counties are listed in Appendices H and I of 40 CFR Part 122); or,

(iii) owned or operated by a municipality other than those described in paragraph (i) or (ii) and that are designated by the Director as part of the medium municipal separate storm sewer system.

L. "MEP" is an acronym for "Maximum Extent Practicable", the technology-based discharge standard for Municipal Separate Storm Sewer Systems established by CWA §402(p). MEP is achieved, in part, by selecting and implementing effective BMPs and rejecting applicable BMPs only when the BMPs would not be technically feasible, or the cost would be prohibitive and unreasonable.

M. "MS4" is an acronym for "municipal separate storm sewer system" and is used to refer to either a Large or Medium Municipal Separate Storm Sewer System (e.g. "The City of Memphis - MS4").

N. "Municipal Separate Storm Sewer" means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, and storm drains):

(i) owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State Law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State Law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian Tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;

(ii) designed or used for collecting or conveying storm water;

(iii) which is not a combined sewer; and

(iv) which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

O. "Permittee" means each individual co-applicant for an NPDES permit who is only responsible for permit conditions relating to the discharge that they own or operate. (Also, See 40 CFR 122.2)

P. "Outfall" means a *point source*, as defined in subpart Q below, at the point where a municipal separate storm sewer discharges to waters of the State of Tennessee and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other waters of the State and are used to convey waters of the State.

Q. "Point Source" means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

R. "Severe property damage" means substantial physical damage to property, damage to the treatment facility which causes it to become inoperable, or substantial and permanent loss of natural resources.

- S.** “Storm Sewer”, unless otherwise indicated, refers to a municipal separate storm sewer.
- T.** “Storm Water” means storm water runoff, snow melt runoff, surface runoff and drainage.
- U.** “Storm Water Discharge Associated with Industrial Activity” is defined at 40 CFR 122.26(b)(14).
- V.** “Storm Water Management Program,” or “SWMP,” refers to a comprehensive program to manage the quality of storm water discharged from the municipal separate storm sewer system. For the purposes of this permit, the Storm Water Management Program is considered a single document, but may actually consist of separate programs (e.g. “chapters”) for each permittee.
- W.** “Time-weighted composite” means a composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.
- X.** “Waters of the state” or simply “waters” is defined in the Tennessee Water Quality Control Act and means any and all water, public or private, on or beneath the surface of the ground, which are contained within, flow through or border upon Tennessee or any portion thereof except those bodies of water confined to and retained within the limits of private property in single ownership which do not combine with or effect a junction with natural surface or underground waters.

PART III

PERMIT CONDITIONS

A. Authorization

The permittee(s) are authorized to discharge storm water from the MS4 according to the management program described in the November 18, 1991, “Part 1”, and November 16, 1992, “Part 2”, NPDES permit applications (and their supplements or addendums) for the MS4. Where this permit specifies modified, different, or other storm water management program activities, the permittee is responsible for compliance with this permit.

B. Storm Water Management Program (SWMP) Elements, 40 CFR 122.26(d)(2)(iv)

The following are elements for the SWMP as prescribed by 40 CFR 122.26(d)(2)(iv) which form the foundation for Part 2 of the permittees application. These programs and their elements are defined herein according to their CFR citations. The permittee, in preparing Part 2 of the NPDES permit application has further broken down each individual program and element into program “tasks” which the Division has labeled with prefixes including RC, ILL, IN, and CS. The program elements pertaining to the CFR guidelines are discussed below; however, the analogous program “tasks” are referenced in Part IV, “Schedules for Implementation and Compliance,” in order to follow as closely as practical the programs proposed by the permittee. These “tasks” shall be implemented according to Part IV, “Schedules for Implementation and Compliance”, of this permit. This SWMP shall reduce the discharge of pollutants to the MEP and shall not cause or contribute to violations of State water quality standards of the receiving streams.

The Residential and Commercial Program (RC)

1. *Program of Structural and Source Controls for Reducing Pollutants to the Municipal Separate Storm Sewer System, 40 CFR 122.26(d)(2)(iv)(A).*

The MS4 and any storm water structural control shall be operated in a manner to reduce the discharge of pollutants to the MEP and shall not cause or contribute to violations of State water quality standards of the receiving streams. Specific elements of this program shall include:

- a.** A description of maintenance activities and schedules for structural and source control measures, subsection (A)(1); and,
- b.** Planning procedures to develop, implement, and enforce, post-construction controls, subsection (A)(2); and,
- c.** A description of practices for street maintenance, including de-icing practices, subsection (A)(3); and,
- d.** Procedures to assure that flood management projects assess water quality impacts, subsection (A)(4); and,
- e.** A program to monitor runoff from operating or closed landfills and other TSD facilities, subsection (A)(5); and,
- f.** A program to reduce runoff to the MEP, associated with herbicides, pesticides, and fertilizers, subsection (A)(6).

The Illicit Discharges and Improper Disposal Program (ILL)

2. *Program to Detect and Remove Illicit and Improper Discharges to the Municipal Storm Sewer System, 40 CFR 122.26(d)(2)(iv)(B)*

The permittees shall implement an on-going program to detect and eliminate (or require the discharger to the MS4 to eliminate) illicit discharges and improper disposal into the storm sewer system. Specific elements of this program shall include:

- a.** A program, including inspections, to implement ordinances or orders, subsection (B)(1); and,
- b.** Procedures to conduct on-going field screening activities, subsection (B)(2); and,
- c.** Procedures to investigate illicit discharges where reasonable potential exists for such discharges, subsection (B)(3); and,
- d.** Procedures to prevent, contain, and respond to spills, subsection (B)(4); and,
- e.** A program to get the public to report spills, subsection (B)(5); and,

- f. Educational programs to promote proper management and disposal of oil and toxic materials, subsection (B)(6); and,
- g. A program to limit sanitary sewer seepage into the separate storm sewer, subsection (B)(7).

The Industrial and Related Facilities Program (IN)

3. *Program to Monitor and Control Runoff from TSD and Industrial Facilities Subject to SARA Title III, Section 313, requirements, 40 CFR 122.26(d)(2)(iv)(C)*

The permittees shall develop and implement a program to identify and control pollutants, to the MEP and shall not cause or contribute to violations of State water quality standards of the receiving stream, in storm water discharges to the MS4 from the municipal landfill(s); hazardous waste treatment, storage, disposal and recovery facilities; facilities that are subject to SARA Title III, Section 313, requirements; and, any other industrial or commercial discharge which the permittees determine is contributing a substantial pollutant loading to the MS4. Storm water monitoring from this program should include from four (4) to eight (8) sites per year. Specific elements of this program shall include:

- a. Identification of priorities and procedures for inspections and control measures for the aforementioned discharges, subsection (C)(1); and,
- b. A monitoring program for municipal landfill(s), hazardous waste treatment, storage, disposal and recovery facilities, facilities that are subject to SARA Title III, Section 313, requirements, and any other industrial or commercial discharge which the permittees determine is contributing a substantial pollutant loading to the MS4 including the submission of quantitative data for the following constituents [subsection (C)(2)]:
 - Pollutants limited in effluent limited guidelines for a particular industry;
 - Pollutants listed in an existing NPDES permit;
 - Oil and grease;
 - COD;
 - pH;
 - BOD5;
 - TSS;
 - Total phosphorus;
 - Total Kjeldahl nitrogen;
 - Nitrate plus nitrite nitrogen; and,
 - 40 CFR 122.21(g)(7)(iii) and (iv) toxics.

The Construction Site Runoff Program (CS)

4. *Program to Implement and Maintain BMP Plans to Reduce Construction Site Runoff to the Municipal Storm Sewer System, 40 CFR 122.26(d)(2)(iv)(D)*

The permittees shall develop and implement a program to reduce the discharge of pollutants from construction sites to the MEP, and shall not cause or contribute to violations of State water quality standards of the receiving streams. Specific elements of the program shall include:

- a. Procedures for construction site planning to consider water quality impacts, subsection (D)(1); and,
- b. A description of requirements for structural and non-structural BMP's, subsection (D)(2); and,
- c. Procedures for identifying priorities for site inspection and enforcement, subsection (D)(3); and,
- d. Educational and training measures for construction site operators, subsection (D)(4).

C. Area-specific SWMP Requirements

(Reserved)

D. Deadlines for Compliance

Except as provided in Part IV, compliance with the storm water management program shall be required 180 days from the effective date of the permit.

E. Roles and Responsibilities of Permittees

The storm water management program, together with any attached interagency agreements or interagency agreements developed subsequent to the effective date of the permit, shall clearly identify the roles and responsibilities of each permittee. Following the effective date of the permit, interagency agreements developed and implemented must be included in the Annual Report that covers the permit year in which the agreement became effective.

F. Legal Authority

To the extent allowed by law, each permittee shall ensure legal authority to control discharges to and from those portions of the MS4 over which it has jurisdiction. This legal authority may be a combination of statute, ordinance, permit, contract, order or inter-jurisdictional agreements between permittees with adequate existing legal authority to accomplish items i.-vi. below:

- i. to control the contribution of pollutants to the MS4 by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity;
- ii. to prohibit illicit discharges to the MS4;

- iii. to control the discharge of spills and the dumping or disposal of materials other than storm water (e.g. industrial and commercial wastes, trash, used motor vehicle fluids, leaf litter, grass clippings, animal wastes, etc.) into the MS4;
- iv. to control through interagency or inter-jurisdictional agreements between the City of Memphis and related MS4 permittees, if any, the contribution of pollutants from one portion of the MS4 to another;
- v. to require compliance with conditions in ordinances, permits, contracts or orders; and
- vi. to carry out all inspection, surveillance and monitoring procedures necessary to determine compliance with permit conditions.

G. SWMP Resources

Each permittee shall provide adequate finances to implement their activities under the Storm Water Management Program. Each permittee shall also have a source of funding for implementing all other requirements included within this NPDES storm water permit.

H. SWMP Review and Modification

1. Program Review

Each permittee shall participate in an annual review of the current Storm Water Management Program (SWMP) in conjunction with preparation of the Annual Report required under subparts VII(A), (B), and (C) of this permit.

2. Program Modification

The permittee(s) may modify the SWMP during the life of the permit in accordance with the following procedures:

- a.** Modifications that add, but neither subtract nor replace, components, controls, or requirements to the approved SWMP may be made by the permittee(s) at any time. A description of the modification shall be included in the subsequent Annual Report.
- b.** Modifications that replace an ineffective or infeasible BMP, which is specifically identified in the SWMP along with an alternate BMP, may be made by the permittee(s) at any time. A description of the replacement BMP shall be included in the subsequent Annual Report along with the following information:
 - (i)** an analysis of why the former BMP was ineffective or infeasible (including cost-prohibitive);
 - (ii)** expectations on the effectiveness of the replacement BMP; and
 - (iii)** an analysis of why the replacement BMP is expected to achieve the goals of the BMP which was replaced.
- c.** Modifications to adjust the schedule for maintenance activities or the frequency of inspections or monitoring identified in the SWMP may be made by the permittee(s) on an annual basis. The permittees must include in the subsequent Annual Report a description of the adjustment to schedule along with the following information:
 - (i)** an analysis of why the former schedule was ineffective or infeasible;
 - (ii)** expectations on the effectiveness of the replacement schedule; and
 - (iii)** an analysis, if applicable, of why the replacement schedule will ensure the optimization of equipment use.
- d.** Modifications that subtract components, controls, or requirements of the SWMP may not be made by the permittee(s) unless it can be clearly demonstrated that with the elimination of this component, the SWMP will continue to achieve a reduction in pollutants to the MEP and shall not cause or contribute to violations of State water quality standards in the receiving stream. In the case where this type of modification is appropriate, the permittee(s) may make the required modification and shall include in the subsequent Annual Report a description of the component which has been eliminated along with the following information:
 - (i)** an analysis of why the component was ineffective or infeasible; and
 - (ii)** a detailed explanation of why, with the elimination of this component, the SWMP will continue to achieve a reduction in pollutants to the MEP and shall not cause or contribute to violations of State water quality standards in the receiving stream.

e. Modifications included in the Annual Report shall be signed in accordance with subpart VIII(K) by all permittees affected by that modification, and shall include a certification that all affected permittees were given an opportunity to comment on proposed changes.

3. *Transfer of Ownership, Operational Authority, or Responsibility for Storm Water Management Program Implementation*

The permittee(s) shall implement the SWMP on all new areas added to their portion of the municipal separate storm sewer system (or for which they become responsible for implementation of storm water quality controls) as expeditiously as practicable. Implementation of the program in any new area shall consider the plans in the SWMP of the previous MS4 ownership.

Prior to annexation of land, the permittee shall include a schedule for extending the SWMP to the annexed areas. At least 30 days prior to transfer of operational authority or responsibility for implementing the SWMP, all parties shall prepare a single schedule for transfer of responsibility for implementing the SWMP on the affected portions of the MS4. This schedule shall be included in the Annual Report.

PART IV

SCHEDULES FOR IMPLEMENTATION AND COMPLIANCE

A. Implementation of SWMP

The permittee(s) shall comply with the following schedules for Storm Water Management Program implementation and augmentation, and for permit compliance.

The program elements following are taken from Part III, Subpart B, of this permit and reflect the program “tasks” as proposed by the permittee in Part 2 of its application:

Of special note in this section is the City's reference to its "Master Plan", found in Section 4a, Page 12, of Part 2 of the NPDES permit application. This plan is specifically referenced in RC-2b of the "Schedule For Development and Implementation of SWMP Elements and Programs", and is proposed for implementation beginning in the third year of this permit. However, in addition to those program elements described by the permittee in its permit application, the Division proposes that the City have a more *aggressive* master planning effort. As such, the Division will require the implementation of the following additional conditions within the master planning process:

- a.** identify how the consideration of storm water quality issues will be incorporated into the City's land use planning process;
- b.** perform monitoring of inflow and outflow of at least three newly installed wet ponds and/or extended dry detention ponds;
- c.** based on the results of BMP evaluations, establish design standards, and criteria for installation, for wet or extended dry detention ponds in areas of new development and significant redevelopment;
- d.** define the master planning effort in more detail;
- e.** begin master planning effort in year two rather than year three;
- f.** identify and prioritize all areas where significant levels of development are expected to occur and schedule master planning for these areas; and,
- g.** investigate areas of "significant redevelopment" and establish criteria for installing water quality control systems in redevelopment.

PART V

MONITORING REQUIREMENTS

A. Wet Weather Monitoring

1. Locations

The permittees shall conduct wet weather monitoring at five or more separate storm sewer outfalls during the five year term of the permit. Sites shall be selected with a view toward achieving the goals of the ambient monitoring program, including the investigation of structural controls in areas of new development and significant re-development, that are enumerated in Section 4a, Pages 9 - 12, of Part 2 of the NPDES permit application. The permittees shall submit a list of sites to the Division for review prior to beginning monitoring. Unless otherwise approved by the Division, each site shall drain an area of homogeneous land use.

2. Procedures

a. Parameters to be sampled at a minimum are shown below:

(These constituents were detected in the sampling data reported in the Part 2 application.)

TABLE V(1)	
PARAMETERS FOR ROUTINE WET WEATHER MONITORING	
pH	biochemical oxygen demand (BOD ₅)
total suspended solids (TSS)	chemical oxygen demand (COD)
total dissolved solids (TDS)	total recoverable cyanide
total ammonia nitrogen (as N)	total recoverable lead
total ammonia plus organic nitrogen	total recoverable zinc
nitrate plus nitrite nitrogen (as N)	dissolved phosphorus
total nitrogen	total phosphorus
SPECIAL ANALYSES	
fecal coliform (1 storm/year)	fecal streptococcus (1 storm/year)

b. Sampling methodology shall be according to the EPA storm water application regulations at 40 CFR 122.26 (November 16, 1990).

3. Estimates of Seasonal Loadings and Event Mean Concentrations

a. The permittees shall provide estimates of the seasonal pollutant load and of the event mean concentration of representative storms for the parameters listed in Table V(1), excluding pH, for each major watershed within the MS4. The permittee shall document the method used to prepare these estimates.

b. The location of all *known* major outfalls shall be inventoried in the Annual Report for year one of the permit, with updates describing any additionally identified major outfalls in each subsequent Annual Report.

c. The seasonal pollutant load and event mean concentration for each major watershed may be estimated from the representative monitoring locations, from regional NURP or State data, or from pooling results from other Tennessee MS4 monitoring activities and shall take into consideration land uses and drainage areas for the outfall. The conclusions of the USGS sampling and pollutant loading report shall be used. Reference United States Geological Survey (USGS) Open-File Report 94-68 titled "Rainfall, Streamflow, and Water-Quality Data for Five Small Watersheds, Nashville, Tennessee, 1990-92" and USGS Water-Resources Investigations Report 95-4140 (in press), as an example.

d. The estimates of seasonal loadings and event mean concentrations shall be included in the Annual Report for the fifth year of the permit. For the purposes of this permit, a "major outfall" is defined as follows:

- a pipe (or closed conveyance) system with a cross-sectional area equal to or greater than 7.07 square feet (e.g., if a single circular pipe system, an inside diameter of 36 inches or greater);
- a single conveyance other than a pipe, such as an open channel ditch, which is associated with a drainage area of more than 50 acres;
- a pipe (or closed conveyance) system, draining industrial land use, with a cross-sectional area equal to or greater than 0.79 square feet (e.g., if a single circular pipe system, an inside diameter of 12 inches or greater); or
- a single conveyance other than a pipe, such as an open channel ditch, which is associated with an industrial land use drainage area of more than 2 acres.

For the purposes of this permit, a "major watershed" is defined as follows:

- an area bounded peripherally by a parting, i.e. ridge, which directs flowing water in different directions and draining to a particular water course or body of water. A major watershed shall encompass a named, current USGS, waterbody. A major watershed may contain one or more major outfalls.

e. The flow basis of the seasonal loadings shall be reported along with the estimates. In addition, an estimate for total runoff from all separate storm sewer system outfalls for the entire City of Memphis area for the year shall be reported in each Annual Report.

f. The seasonal sampling program shall be developed and submitted to the Division for review within twelve (12) months of issuance of the permit. Sampling shall proceed beginning twelve (12) months following the issuance of this permit and continue through the term of the permit.

B. In-Stream Ambient Monitoring

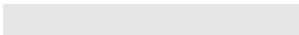
1. Development of Program

The permittees shall develop a program, as proposed in Part 2 of the NPDES permit application in Section 4a, Page 12, of monitoring the water quality of local streams. The program shall be submitted to the Division for review no later than the first Annual Report. The Division will have 30 days to review the proposed program before permittees begin sampling.

The City of Memphis may choose to enhance already existing programs of ambient monitoring as fulfillment of this requirement. The intent of this program is to provide the City with additional sampling data that it may need in the assessment of its SWMP and related BMPs. However, for each type of ambient monitoring performed (i.e., dry weather, wet weather, chemical, and biological), the City of Memphis shall be a participant in the field at least once during the first year of monitoring, i.e. in the event the City of Memphis should contract for this work, the City itself is still required to actively participate in the actual field collection of data at least once during the first year of monitoring and maintain administrative oversight of the collection of such data thereafter.

2. Biological Sampling

The City of Memphis shall develop a program of periodic biological assessments of at least two urban streams. The choice of streams must be approved by the Director of the Division of Water Pollution Control. The Division intends that these streams be ones that are not meeting classified uses because of, or likely because of, the impact of urban runoff. During year three of the permit, the two sites shall be sampled one time only during the period from August to October. The protocol for sampling shall be that found in EPA's Rapid Bioassessment protocols. The level of protocol for each sampling must be approved by the Director of the Division.



PART VI

REPORTING REQUIREMENTS

A. Annual Reporting

1. Preparation of annual report required

a. Each permittee shall contribute to the preparation of an annual system-wide report to be submitted by no later than six months following the period covered by the report. The Annual Report shall cover the 12 month period beginning on the effective date of this permit and annually thereafter.

b. The preparation and submittal of a system-wide Annual Report shall be coordinated by a committee. The committee shall include a member or designated representative from each municipal entity covered by this permit. Each permittee shall be individually responsible for providing information on the portions of the MS4 for which they are the operator and for providing information for the system-wide report in a timely manner. Joint responsibility for the Annual Report submission shall be limited to the following: (1) participation in preparation of the overview for the entire system; and (2) inclusion of the identity of any permittee who failed to provide input to the report. Each permittee shall sign and certify the Annual Report in accordance with subpart VIII(K) of this permit, and shall include a statement or resolution that the permittee's governing body or agency (or delegated representative) has reviewed or has been appraised of the content of the Annual Report.

c. The Annual Report shall include the following sections:

- Contacts List
- SWMP Evaluation
- Summary Table
- Narrative Report
- Monitoring Section
- Summary of SWMP and Monitoring Modifications
- Fiscal Analysis
- Appendices

2. The following items describe in more detail the specific requirements for the Annual Report.

a. Provide a list of contacts and responsible parties (e.g.: agency, name, phone number) who had input to and are responsible for the preparation of the Annual Report.

b. Provide an overall evaluation of the Storm Water Management Program including: Objective of Program; Major Findings (e.g.: water quality improvements or degradation); Major Accomplishments; Overall Program Strengths / Weaknesses; and Future Direction of Program.

c. Provide a Summary Table of Storm Water Management Program Elements.

i. A Summary Table of appropriate SWMP annual activities for each permittee shall be provided. The purpose of the Summary Table is to document in a concise form the program activities and permittees' compliance status with quantifiable permit requirements. Program elements that are administrative (e.g.: planning procedures, program development and pilot studies) are inappropriate for the summary table and shall be discussed in the narrative section of the Annual Report. The following are examples of SWMP activities to be included in the Summary Table:

- (1) Structural Controls - maintenance and/or inspection activities of existing structural controls
- (2) Roadway Maintenance - street sweeping, litter control activities, and maintenance on storm water structures & roadside ditches
- (3) Municipal Waste TSD Facilities - inspections, monitoring, and implementation of control measures
- (4) Pesticide, Herbicide, and Fertilizer Application -certification training and public education
- (5) Illicits - facility inspections, investigations, enforcement actions, illicit (dry weather) screening, illicit public reporting, oil/household hazardous waste collection, and storm sewer inlet stenciling
- (6) High Risk Industrial Facilities - inspection activities and monitoring
- (7) Construction - training of inspectors, inspections, and enforcement actions
- (8) Storm Water Treatment Projects - description of municipal storm water treatment projects that have been completed, including a brief description of the affected drainage basin

ii. The Summary Table shall indicate each permittee's SWMP activities and accomplishments. The format for this information shall adhere to the example shown in Table VI(1) contained herein. Items to be reported include:

- (1) Activity description;
- (2) Number of activities (with frequency) that were scheduled for implementation and/or accomplishment in program element discussion (i.e., once/6 months, 100%/5 years, 5 sites monitored once/year, all sites inspected/permit term). Enter "Not Applicable" (N/A) if no specific schedule was specified;
- (3) Status of schedule for year ("yes" for schedule was adhered to, or "no" for schedule was not adhered to);

(4) Number of activities which were accomplished; and

(5) The availability of documentation (i.e., inspection reports) for those activities which were accomplished and comments describing the reason(s) for any non-compliance.

SAMPLE SUMMARY TABLE FOR STORM WATER MANAGEMENT
PROGRAM ELEMENT STATUS & COMPLIANCE (EXAMPLE ONLY)
TABLE VI(I)

PROGRAM ELEMENT	TASK	ACTIVITY SCHEDULE			Comments
		Activities Required by SWMP	Complied With?	Activities Accomplished During Calendar Year	
STRUCTURAL CONTROLS	Major channels inspected	15 channels, once/6 months	YES	15 channels, once/6 months	Copies of inspection report forms available upon request.
	Major channels maintained	As needed	N/A	7 channels maintained	
	Grate inlets inspected	1500 inlets, once/year	NO	1000 inlets	Ambitious projection. Reducing to 1000 next year due to resources.
	Detention ponds maintained	1 pond once/month	YES	1 pond once/month	Sediment removed after spring rains.
	Storm drain inlets inspected	35 inlets, once/6 months	YES	35 inlets, once/6 months	Copies of inspection report forms available upon request.
MONITORING	Municipal landfills	2 facilities, once/6 months	YES	2 facilities, once/6 months	Copies of inspection report forms available upon request.
	POTW's	3 facilities, once/year	NO	2 facilities	Copies of inspection report forms available upon request.
	Industrial - Hazardous	5 facilities, once/6 months	YES	5 facilities, once/6 months	Copies of inspection report forms available upon request.
	SARA Title III	3 facilities, once/6 months	YES	3 facilities, once/6 months	Copies of inspection report forms available upon request.
	Others	2 facilities, once/year	YES	2 facilities,	Copies of inspection report forms available upon request.
	Dry weather screening	100% system, once/5 years	YES	20% system	Copies of screening field reports - Appendix B.
	Floatable assessment	100 sections surveyed/year	YES	140 section surveyed	Copies of field survey available upon request.

d. The Annual Report shall contain a Narrative Report that succinctly discusses the SWMP Elements which were not included within the SWMP Summary Table. Those SWMP elements required to be developed under Parts III and IV of the permit shall be discussed within this section of the Annual Report following development.

i. The permittees shall include a brief discussion of the following applicable SWMP Elements:

- (1) Structural Controls Maintenance
- (2) Development Planning Procedures
- (3) Roadway Maintenance
- (4) Flood Management
- (5) Municipal Facilities
- (6) Pesticides, Herbicides, and Fertilizers
- (7) Illicits Inspection/Investigation/Enforcement
- (8) Field Screening
- (9) Investigation of illicit discharges where reasonable potential exists
- (10) Spill Response
- (11) Public Reporting of Illicit Discharges
- (12) Oil and Household Hazardous Waste
- (13) Sanitary Sewer Seepage
- (14) High Risk Industrial Facility Inspection
- (15) Monitoring program for high risk facilities
- (16) Construction Planning Procedures
- (17) Structural and non-structural BMP's
- (18) Prioritizing of site inspections
- (19) Educational activities

ii. The format for the Narrative Report section of the Annual Report shall be a brief discussion of the SWMP element. The aspects of each permittee's activities concerning a SWMP Element shall be succinctly discussed in the section of the Narrative Report dedicated to that element. The discussion shall include the following:

- (1) Objective of SWMP Element;
- (2) SWMP Element activities completed and those in progress;
- (3) General discussion of element. Explanation of all Element activity deficiencies (e.g.: activities described in the program that have not been fully implemented or completed). Results of activities shall be summarized and discussed (e.g.: maintenance caused by inspection, pollutants detected by monitoring, investigations as a result of dry and wet weather screening, number and nature of enforcement items, education activities participation);
- (4) Status of SWMP Element with compliance, implementation, and augmentation schedules in Part IV of the permit;

(5) SWMP Element strengths and weaknesses;

(6) Assessment of controls; including assessment of accuracy in recording and following up on investigations, in recording results of follow-up; and in providing estimates of pollutant loading, with a view toward setting up the system to report by program and at least by watershed, if not by outfall;

(7) Discussion of Element revisions that are summarized elsewhere in the Annual Report.

e. The Annual Report shall contain a Monitoring Section which discusses the progress and results of the monitoring programs required under Part V (Wet weather monitoring) of the permit.

i. The Monitoring Section of the Annual Report shall include the following information as required in subpart VI(A) of the permit:

(1) Inventory of all *known* major outfalls in the first Annual Report, with updates describing additionally identified major outfalls in each subsequent Annual Report;

(2) For the Annual Report for year five of the permit, estimates of seasonal pollutant loadings and event mean concentrations (EMC) for each major watershed required by Item V(A)(3) of the permit; the basis for estimates shall be clearly given; and

(3) Based on total rainfall for the year, imperviousness of different land uses, etc., an estimate of the total volume of urban runoff discharged in the City of Memphis for the year.

ii. The Monitoring Section of the Annual Report shall include a summary of the monitoring program developed and implemented under subpart V(B) (Ambient monitoring) of the permit. The details to be discussed include:

(1) For the first Annual Report, an explanation and rationale for the type of ambient monitoring program the permittee(s) will conduct, to be submitted for the Division's review;

(2) Summary chart of the data from the monitoring completed;

(3) Discussion of any results or conclusions derived from the monitoring completed;

(4) For the first year of monitoring, a record of the permittee's personnel participating in the collection of samples;

(5) For the second Annual Report, an explanation and rationale for a program of biological assessments of at least two urban streams during

the third year of this permit; and for the third Annual Report, the report shall include as appendices, the results of the assessments; and

(6) Discussion of monitoring program revisions that are summarized elsewhere in the Annual Report.

f. Provide estimated reductions in loadings of pollutants from discharges of pollutants from the MS4 expected as the result of the municipal storm water management program. The assessment shall identify known impacts of storm water controls on ground water quality. 40 CFR 122.26(d)(2)(v).

g. Provide a summary of the SWMP and modifications in the monitoring program made during the permit year.

h. List and discuss any changes that the permittee(s) is expected to make to the storm water management programs for the year following the report year.

i. Provide a complete fiscal analysis for each permittee's program implementation, both for the past calendar year and the next. The analysis shall indicate budgets and funding sources.

j. The following information shall be included as Appendices within the Annual Report for the fifth year of the permit:

i. Analytical data collected from the monitoring program;

ii. Results of illicit connections screening or dry weather screening; and

iii. Any other data specifically requested by the Division to substantiate statements and conclusions reached in the Annual Reports.

B. Certification and Signature Reports

All reports required by the permit and other information requested by the Director shall be signed and certified in accordance with subpart VII(K) of the permit.

C. Time and Place of Report Submittal

1. As required by subpart VI(A), monitoring results obtained during each annual reporting period beginning on the effective date of this permit and annually thereafter shall be submitted on Discharge Monitoring Report Form(s) in the Annual Report for year five of the permit. A separate Discharge Monitoring Report Form is required for each event monitored.

2. Signed copies of the Annual Report required by subpart VI(A) and all other reports required herein, shall be submitted to:

Division of Water Pollution Control
Attention: Compliance Review
L & C Annex, 6th Floor
401 Church Street

Nashville, Tennessee 37243-1534

D. Retention of Records

The permittees shall retain the latest version of the Storm Water Management Program developed in accordance with Part III of this permit for at least three years after the expiration date of this permit. The permittees shall retain all records of all monitoring information, copies of all reports required by this permit, and records of all other data required by or used to demonstrate compliance with this permit, until at least three years after the expiration date of this permit. This period may be explicitly modified by alternative provisions of this permit or extended by request of the Director at any time.

PART VII

STANDARD PERMIT CONDITIONS

A. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of applicable State and Federal laws and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

B. Duty to Reapply

The permittee is not authorized to discharge after the expiration date of this permit. If the permittee wishes to continue discharges after the expiration date, the permittee must reapply, with necessary information and forms, for reissuance of the permit, at least 180 days prior to the expiration date.

C. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

F. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

G. Property Rights

This permit does not convey any property rights of any sort in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

H. Duty to Provide Information

The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Director upon request, copies of records required to be kept by this permit.

I. Inspection and Entry

The permittee shall allow the Director, or an authorized representative of the EPA, including a contractor acting as a representative of the EPA Administrator, upon presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by State law or the Clean Water Act, any substances or parameters at any location.

J. Monitoring and Records

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

2. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

3. Records of monitoring information shall include:

- a. The date, place, and time of sampling or measurements;
- b. The individual(s) who performed the sampling or measurements;
- c. The date(s) analyses were performed;
- d. The individual(s) who performed the analyses;
- e. The analytical techniques or methods used; and
- f. The results of such analyses.

4. Monitoring results must be conducted according to test procedures approved under 40 CFR part 136, unless other test procedures have been specified in the permit.

5. The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by fines and imprisonment described in Section 309 of the Clean Water Act.

K. Signatory Requirements

1. All applications, reports, or information submitted to the Director shall be signed and certified.

- a. Applications

All permit applications shall be signed (for a municipality, State, Federal, or other public agency) by either a principal executive officer or ranking elected official.

- b. Reports and other information

All reports required by this permit, and other information requested by the Director shall be signed by a person described in subitem a of this section, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

i. The authorization is made in writing by a person described in subitem a of this section;

ii. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of director or assistant director, manager or superintendent, or position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and

iii. The written authorization is submitted to the Director.

c. If an authorization under subitem b above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of sub-item b of this section must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

d. Certification

Any person signing a document under subitem a or b of this section shall make the following certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

2. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

L. Reporting Requirements

1. Planned changes

The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

- a.** The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in § 122.29(b); or
- b.** The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under § 122.42(a)(1).
- c.** The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;

2. Anticipated noncompliance

The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

3. Transfers

This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the State law and the Federal Clean Water Act.

4. Monitoring reports

Monitoring results shall be reported at the intervals specified elsewhere in this permit.

- a.** Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director.
- b.** If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR part 136, or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.
- c.** Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

5. Twenty-four hour reporting

a. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

b. The following shall be included as information which must be reported within 24 hours under this paragraph.

i. Any unanticipated bypass which exceeds any effluent limitation in the permit. (See § 122.41(g).)

ii. Any upset which exceeds any effluent limitation in the permit.

iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the permit to be reported within 24 hours. (See § 122.44(g).)

c. The Director may waive the written report on a case-by-case basis for reports under paragraph (L)(5)(ii) of this section if the oral report has been received within 24 hours.

6. Other noncompliance

The permittee shall report all instances of noncompliance not reported under paragraphs (L) (4) and (5) of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (L)(5) of this section.

7. Other information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information.

M. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

N. Liabilities

1. Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Notwithstanding this permit, the permittee shall remain liable for

any damages sustained by the State of Tennessee, including but not limited to fish kills and losses of aquatic life and/or wildlife, as a result of the discharge of wastewater to any surface or subsurface waters. Additionally, notwithstanding this permit, it shall be the responsibility of the permittee to conduct its wastewater treatment and/or discharge activities in a manner such that public or private nuisances or health hazards will not be created.

2. Liability Under State Law

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or the Federal Water Pollution Control Act, as amended.

PART VIII

PERMIT MODIFICATION

A. Modification of the Permit

The permit may be reopened and modified during the life of the permit to:

1. Address impacts on receiving water quality caused, or contributed to, by discharges from the MS4;
2. Address changes in State or Federal statutory or regulatory requirements;
3. Include the addition of a new permittee who is the owner or operator of a portion of the Municipal Separate Storm Sewer System; or
4. Include other modifications deemed necessary by the Director to comply with the goals and requirements of the Clean Water Act.

All modifications to the permit will be made in accordance with 40 CFR 122.62, 122.63, and 124.5 and applicable State regulations.

B. Termination of Coverage for a Single Permittee

Permit coverage may be terminated, in accordance with the provisions of 40 CFR 122.64 and 124.5, for a single permittee without terminating coverage for other permittees.

C. Modification of Storm Water Management Programs (SWMP's)

Only those portions of the Storm Water Management Programs specifically required as permit conditions shall be subject to the modification requirements of 40 CFR 124.5. Replacement of an ineffective or infeasible BMP implementing a required component of the Storm Water Management Program with an alternate BMP expected to achieve the goals of the ineffective or infeasible BMP shall be considered minor modifications to the Storm Water Management Program and not modifications to the permit. (See also Part III(H)(2))

D. Changes in Monitored Outfalls

This permit is issued on a system-wide basis in accordance with CWA §402(p)(3)(B)(i) and authorizes discharges from all portions of the municipal separate storm sewer system. Since all outfalls are authorized, changes in monitoring outfalls, if any, shall be considered minor modifications to the monitoring program and not modifications to the permit. (See also Part VI(A)(2)(g)).

SBL

68276PMT.DOC



RATIONALE

THE CITY OF MEMPHIS - MS4
NPDES PERMIT NO. TNS068276
SHELBY COUNTY, TENNESSEE

Permit Writer: Stephen B. Letendre

I. DISCHARGER(S)

This permit and rationale address the discharge of storm water runoff to the municipal separate storm sewer system (MS4) owned and operated by The City of Memphis, located in Shelby County, Tennessee. The system is further described in detail in the NPDES permit application made to the Division of Water Pollution Control (the "Division"). At this time, it has been determined that there is no need for co-applicants to the City's submittal.

The application was prepared by:

ERCE
3325 Perimeter Hill Dr.
Nashville, TN 37211

PDR engineers, Inc.
245 Wagner Place, Suite 260
Memphis, TN 38103

Lightpath, Inc.
3202 Custer Drive
Lexington, KY 40544

The application was submitted by:

The City of Memphis
Division of Public Works
125 N. Mid American Mall
Memphis, TN 38103

Contact: Mr. Benny Lendermon,
Director
Public Works
(901) 576-7109

Mr. James Collins, City Engineer
(901) 576-6700

Mr. Doug Noel, P.E.
ERCE, Water Resource Branch
(615) 333-0630

II. PERMIT STATUS

Application was made in two (2) parts pursuant to the requirements of 40 CFR §§122.26(d)(1) and 122.26(d)(2). Part 1, hereinafter referenced as “Applic. Part 1”, is dated November 18, 1991, and Part 2, hereinafter referenced as “Applic. Part 2”, is dated November 16, 1992. As stated previously, there are no co-applicants to this permit application submittal. Should the need arise for such co-permittees, the City of Memphis (the “City”) maintains certain provisions in its Charter, Sections 847 and 850, which permit the City to enter into interagency agreements with any governmental body in Shelby County.

The Division has reviewed Applic. Parts 1 and 2, and has found the submissions to be complete and adequate for the purpose of preparing the NPDES permit for this MS4.

III. MS4 DESCRIPTION

A. EPA Definitions

The Environmental Protection Agency (the “EPA”), in 40 CFR §§122.26(b)(8) and 122.26(b)(4), defines a *Municipal Separate Storm Sewer* and a *Large Municipal Separate Storm Sewer System* as follows:

“*Municipal Separate Storm Sewer*” means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, and storm drains):

- (i) owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State Law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State Law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian Tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;
- (ii) designed or used for collecting or conveying storm water;
- (iii) which is not a combined sewer; and
- (iv) which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

“*Large Municipal Separate Storm Sewer System*” means all municipal separate storm sewers that are either:

- (i) located in an incorporated place (city) with a population of 250,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and G of 40 CFR Part 122); or,
- (ii) located in the counties with unincorporated urbanized populations of 250,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties (these counties are listed in Appendices H and I of 40 CFR Part 122); or,
- (iii) owned or operated by a municipality other than those described in paragraph (i) or (ii) and that are designated by the Director as part of the large municipal separate storm sewer system.

B. The City's System

The City of Memphis is located in Shelby County and encompasses an area of approximately 285 square miles in the southwest corner of Tennessee. Storm water drainage in the City and the County runs off to the Mississippi River. Most of the local drainage actually enters one of five (5) major drainage features or their tributaries, or runs off directly to the Mississippi River through the separate storm sewer system.

IV. RECEIVING WATERS

During meetings held between the Division and the City in July, 1991, the City and the State agreed on a system of identifying receiving waters in order to protect, preserve, and enhance the quality of the streams within the jurisdiction of certain MS4 applicants in the State of Tennessee. For the purpose of the City's NPDES application and its Storm Water Management Plan (SWMP), streams were identified as those waters of the State with identifiable aquatic life that must be preserved under the provisions of the Tennessee Water Quality Control Act, TCA §69-3-101, et. seq.. In doing so, the following tasks were performed:

- a. the Division staff prepared maps showing the locations of the streams to be identified in the Memphis area;
- b. the City and its consultants identified the in-ground and surface drainage discharging to the streams; and,
- c. the drainage boundaries of each discharge point was identified.

In order to facilitate the management of the local storm water program, it was agreed that functional storm water management units would be identified in the City. These functional units represent sub-areas of the major watersheds throughout the City. All of the major watersheds have been divided into sub-areas that are consistent with the drainage improvement plan files of the City. These sub-areas were used by the City as both the minimum units for its SWMP and for future recording of changes to the storm water infrastructure in those areas. All or portions of the identified sub-areas are within the City limits. The locations and characteristics of these sub-areas are provided in the form of maps and tables in the Applic. Part 1, Section 3, "Source Identification", pages 3-5 through 3-25.

V. PERMIT DEVELOPMENT AND METHODOLOGY

A. Introduction

The Water Quality Control Act of 1987 (the *Clean Water Act*, or the "CWA"), 33 U.S.C. §1342, et. seq., which set up the present NPDES permit requirements for discharges of urban runoff, requires that the NPDES permit issued to the City of Memphis, Shelby County:

- i. include a requirement to effectively prohibit non-stormwater discharges into the storm sewers; and,
- ii. reduce pollutants in discharges from the MS4 to the "Maximum Extent Practicable" (MEP).

The subject permit will impose Best Management Practices (BMP's) in the form of required source control measures and a comprehensive SWMP as the mechanism to implement the statutory requirements.

While Section 402(p)(3)(B)(iii) of the CWA includes structural controls as a component of the MEP conditions, the Division recognizes that a municipality may first implement pollution prevention measures and reserve more costly structural controls for higher-priority watersheds or where source controls are infeasible or ineffective and where pilot studies have been done to prove the effectiveness of the structural control.

B. Necessary MS4 program Elements

The EPA regulations of November 16, 1990, 40 CFR §122.26, formally established certain application requirements for medium and large MS4's. In addition to requiring a good deal of background information and the collection of mapping and storm water discharge data, the application regulations required the City to submit a proposed storm water quality management program. The minimum elements of such a plan are provided for in the regulations. Notwithstanding such regulatory provisions, the NPDES permit issued to a medium or large MS4 should also set forth requirements for each of these program elements.

The EPA has published certain technical support documents which elaborate on the provisions of 40 CFR §122.26. These documents include the Guidance Manual for the Preparation of Part 1 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems, EPA 505/8-91-003A, April, 1991, and the Guidance Manual for the Preparation of part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems, EPA 833-B-92-002, November, 1992. APPENDIX 1 to this rationale is taken from the November, 1992, guidance manual (page 2-3) and graphically illustrates, in its simplest form, the elements included in a complete and adequate Applic. Part 1 and Applic. Part 2.

APPENDIX 2 is a general outline of the individual sections included in the Federal and State requirements for storm water discharges pursuant to 40 CFR §122.26. Sections (a) through (c) describe the general permit requirements, definitions, and application requirements for storm water discharges from industrial activity. Section (d) provides a more detailed guideline for the conditions associated with the Applic. Part 1 and Applic. Part 2. Of particular interest with regard to the preparation of this permit and rationale is Section (d)(2)(iv) which sets forth the conditions and requirements for a "Proposed Management Program." This section is enclosed within the shaded area of APPENDIX 2.

Finally, APPENDIX 3 addresses the "Proposed Management Program" and presents the verbatim provisions of the federal guidelines. In particular, 40 CFR §122.26(d)(2)(iv) contains four (4) primary elements, Sections A through D, which are further broken down into nineteen (19) sub-sets that set forth specific conditions and requirements in preparation of a SWMP. Compliance with these conditions and requirements is reviewed in the following parts of this rationale.

VI. STORM WATER MANAGEMENT PROGRAM DEVELOPMENT

The development of the SWMP proposed by the City is divided into two (2) parts for the purpose of the preparation of this permit. First, the City was to comply with the requirements of 40 CFR §122.26 in submitting a complete application in two (2) parts, i.e. Applic. Part 1 and Applic. Part 2. As discussed previously the City has submitted such applications and they have been adjudged complete and adequate for the purpose intended. Second, the City was to prepare a detailed Proposed Management Plan including a schedule for the implementation and maintenance of such a plan. APPENDIX 4 is a tabulation of each of the statutory requirements outlined in 40 CFR 122.26(d), which are applicable to the City, and with which the City must comply. This table illustrates which of these requirements the City has provided information for and which requirements the City is lacking. Overall, the City has sufficiently complied with those provisions with which the City is currently capable of complying. Several statutory conditions are such that they do not apply to the City's situation and/or the information required cannot be obtained until full implementation of the SWMP.

The City has prepared a schedule for the development and implementation of the SWMP. This schedule is contained in APPENDIX 5 and is segregated into four (4) distinct elements, or *Programs*, as discussed in Part III of the permit. Furthermore, the permittee, in preparing Part 2 of the NPDES permit application has further broken down each individual *Program* into separate "*tasks*" which are labeled with prefixes including RC (The Residential and Commercial Program), ILL (The Illicit Discharges and Improper Disposal Program), IN (The Industrial and Related Facilities Program), and CS (The Construction Site Runoff Program). These *Program Tasks* are analogous to the nineteen (19) regulatory program elements outlined in 40 CFR 122.26(d)(2)(iv) and are being included as part of this permit and rationale in order to facilitate the management of the SWMP while assuring compliance with the regulatory requirements by providing a cross-reference to the implementation schedule prepared by the City in its Applic. Part 2. APPENDIX 5 states the proposed "Activity", a description of the activity, and the associated schedule for implementation as required by the CFR guidelines.

Of particular concern in this section is the City's reference to its "Master Plan", found in Section 4a, Page 12, of Part 2 of the NPDES permit application. This plan is specifically referenced in RC-2b of the "Schedule For Development and Implementation of SWMP Elements and Programs", and is proposed for implementation beginning in the third year of this permit. However, in addition to those program elements described by the permittee in its permit application, the Division proposes that the City have a more *aggressive* master planning effort. As such, the Division will require the implementation of the following additional conditions within the master planning process: **a.** identify how the consideration of storm water quality issues will be incorporated into the City's land use planning process; **b.** perform monitoring of inflow and outflow of at least three newly installed wet ponds and/or extended dry detention ponds; **c.** based on the results of BMP evaluations, establish design standards, and criteria for installation, for wet or extended dry detention ponds in areas of new development and significant redevelopment; **d.** define the master planning effort in more detail; **e.** begin master planning effort in year two rather than year three; **f.** identify and prioritize all areas where significant levels of development are expected to occur and schedule master planning for these areas; and, **g.** investigate areas of "significant redevelopment" and establish criteria for installing water quality control systems in redevelopment.

VII. SAMPLING AND MONITORING REQUIREMENTS

A. Introduction

The EPA storm water application regulations set forth requirements such that MS4 cities will address at least three (3) types of sampling during the term of their permits. The types of samples are as follows:

- representative data collection (refers to sampling storm water discharges at Outfalls of the MS4 system; may be designed to describe an area of homogeneous land use);
- field screening for illicit connections and improper disposal; and,
- monitoring runoff from industrial sites.

See APPENDIX 6 for quotations from the EPA regulations which address the subject of sampling. This appendix is titled "Storm Water Application Regulations, November 16, 1990, on Permit Sampling Requirements". In addition, the City may perform other types of monitoring as well, including but not limited to:

- in-stream sampling, both chemical and biological;
- stream bioassessments; and,
- BMP or other storm water treatment system influent and effluent monitoring.

B. The City's Proposed Program

Industrial monitoring, field screening, BMP monitoring, representative data collection, wet weather monitoring, and ambient monitoring have been addressed by the City in its Applic. Part 2, and the results are found in APPENDIX 5 as discussed previously. Furthermore, the Division herein adopts the Proposed Management Program as presented by the City subject to the addition of some in-stream biological monitoring to assess any improvements in water quality within certain streams. The general requirements for the suggested biological monitoring is found in Part V, Section B(2), of the permit and is titled "Biological Sampling".

VIII. ASSESSMENT OF CONTROLS

A. Need for assessments

The Division believes an MS4 city needs to assess the effectiveness of its storm water quality management program for a number of reasons. These assessments serve many purposes such as:

- a step in determining whether the most cost effective best management practices are included in the storm water management program;
- a means to ensure the operator of the MS4 is accountable to the public and other users of the MS4;
- to assist in designing on-going monitoring, inspection and surveillance programs that help refine estimates of program effectiveness;
- a baseline and ongoing measuring stick of the progress of the program; and
- in developing a strategy to evaluate progress toward achieving water quality goals.

B. Definition of assessments

EPA's Part 2 Guidance Manual states: "For some components of a proposed management program, such as structural controls (e.g., vegetative streambank stabilization, sediment pond or basin, etc.), the effect on pollution in storm water runoff is observable, and pollutant removal efficiencies can be estimated directly. For other components, pollutant reductions may be difficult to quantify. Applicants may need to use indirect estimates. For example, a program component may address source controls such as changing the behavior of citizen in the community, or improving the municipal control of industrial or commercial runoff." So there are direct measurements of program effectiveness and indirect measurements.

Examples of some direct measurements:

- expected pollutant load reductions (part 2 application)
- removal efficiencies of BMP's
- reductions in the volume of storm water discharged
- reductions in event mean concentrations

Examples of indirect measurements:

- gallons of used oil recycled
- amount of household hazardous waste collected
- number of education brochures distributed
- number of reports of illicit discharges or illegal dumping
- number of construction and erosion and sediment control plans submitted and approved

C. EPA storm water application regulations

The EPA storm water rules address assessments in a couple of places. First, the application rule made "Assessment of controls" an element of the part 2 application, requiring that the applicant make an initial, or baseline, assessment of what quantitative impact its storm water management plan will have on the quantity of pollutants discharged from the MS4.

Second, NPDES rules at 40 CFR 122.42 specify that the operator of an MS4 submit an annual report that includes, among other items, "revisions, if necessary, to the assessment of controls...reported in the permit application."

D. The City's proposal for assessment of controls

The City will be developing and implementing storm water control programs, studying existing programs for how to improve them, collecting technical data from pilot projects, water quality data, etc.

The City's part 2 application did not present estimated reductions in loading of pollutants to the MS4. This makes it somewhat more difficult to gauge or judge the relative merit of each of the program elements. For instance, do we expect more reduction in pollutant loading because of street sweeping or because of finding and eliminating illicit connections?

E. Division's proposed permit conditions

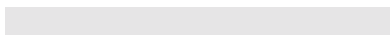
The Division will require an assessment of controls in the permit, primarily by reiterating the federal regulations concerning the annual reporting requirements. See APPENDIX 7.

Several specific requirements will be mandated by the Division as well. The Division will:

- i. require a high level of accuracy in recording and following up on investigations and in recording results of follow-up; this, we believe, will encourage industries and citizens to respond quickly before and without legal enforcement actions; and
- ii. require the City to provide estimates of pollutant loading, with a view toward setting up the system to report by program and at least by watershed, if not by outfall; we believe that as information on these programs and their effects is collected, not only in Memphis, but nationwide, that more and more reliable estimates can be made; already having a system in place to accept these data will save time and resources in the future; for example, a worksheet and lookup table can be prepared with program information, compliance rates, land uses, etc. that can be correlated with monitoring and stream data and pollutant load estimation equations; such a table could include all known MS4 outfalls, which could be manipulated and reported by watershed, by industry, by land use, etc.

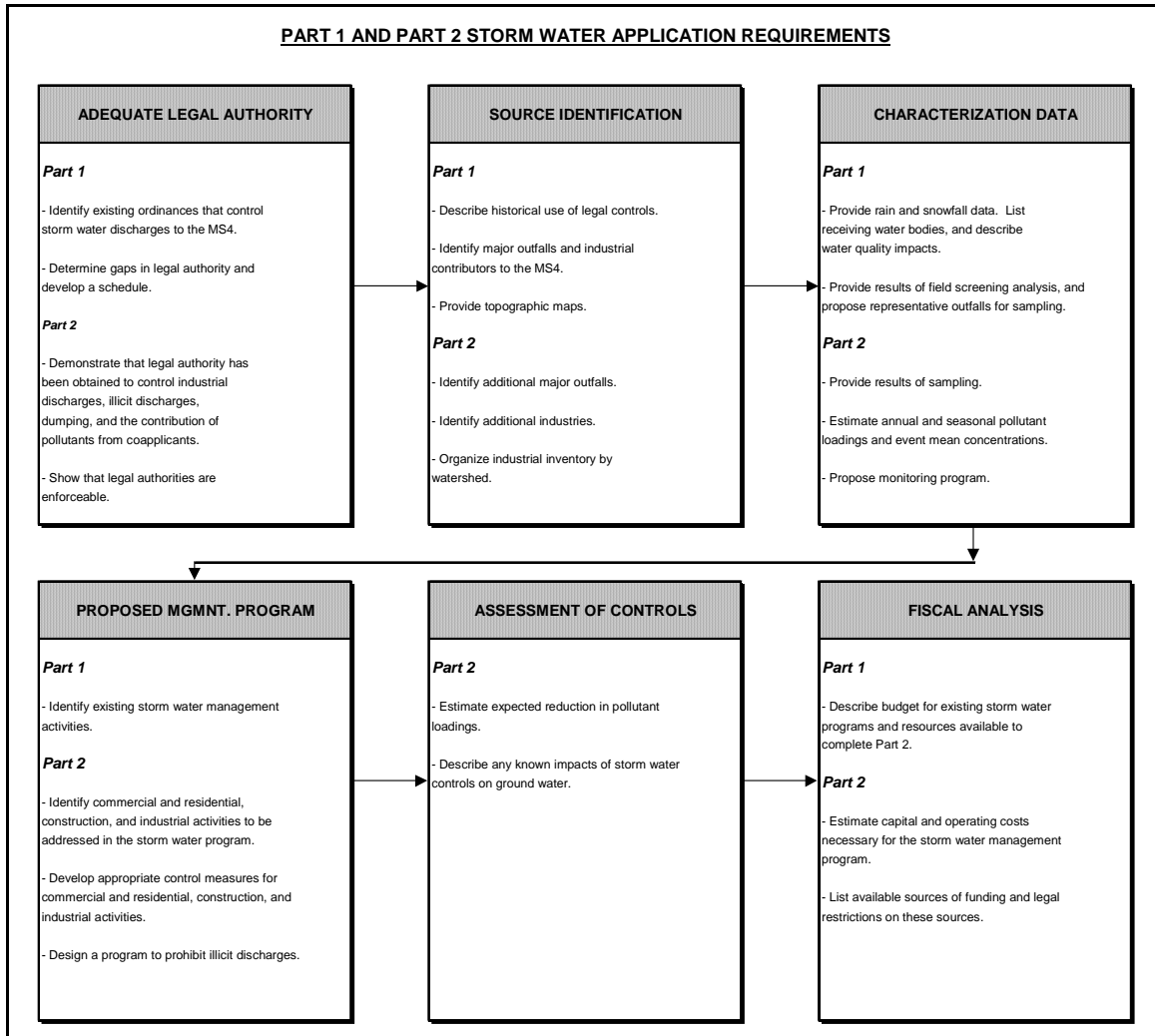
IX. NEW PERMIT LIMITS AND CONDITIONS

The body of the permit contains the schedule of implementation for the proposed SWMP as found in APPENDIX 5.



APPENDIX 1

PART 1 AND PART 2 STORM WATER APPLICATION REQUIREMENTS



APPENDIX 2

122.26 Storm Water discharges (applicable to State NPDES programs, see §123.25)

- (a) *Permit requirement*
- (b) *Definitions*
- (c) *Application requirements for storm water discharges associated with industrial activity*
- (d) *Application requirements for large and medium municipal separate storm sewer discharges*

(1) Part 1. Part 1 of the application shall consist of;

- (i) *General information*
- (ii) *Legal authority*
- (iii) *Source identification*
- (iv) *Discharge characterization*
- (v) *Management programs*
- (vi) *Fiscal resources*

(2) Part 2. Part 2 of the application shall consist of;

- (i) *Adequate legal authority*
 - (A) to control industrial discharges
 - (B) to prohibit illicit discharges
 - (C) to control spills, dumping, etc.
 - (D) exercise interagency agreements
 - (E) require compliance with permits & ordinances
 - (F) inspection and monitoring for compliance
- (ii) *Source identification*
- (iii) *Characterization data*
 - (A) quantitative data from representative outfalls
 - (B) estimates of annual pollutant loadings and event mean concentrations
 - (C) proposed schedule to provide estimated seasonal loadings

**APPENDIX 2
(Cont'd.)**

- and event mean concentrations
(D) proposed monitoring program for the duration of the permit

(iv) *Proposed management program*

- (A) Description of structural and source controls for runoff from commercial and residential areas
- (1) Description of maintenance activities and schedule for structural controls to reduce pollutants (including floatables)
 - (2) Description of planning procedures, including a comprehensive master plan, etc. - development and redevelopment; shall address controls to reduce pollutants ... after construction is completed
 - (3) Description of practices for street maintenance, including deicing practices
 - (4) Assure flood control projects and assess impacts to water quality and evaluate existing flood control devices for retrofitting
 - (5) description of program to monitor pollutants in runoff from landfills, TSD's; shall identify priorities and procedures for inspections and control measures
 - (6) program to reduce pesticides, herbicides, and fertilizers
- (B) Program and schedule to detect and remove illicit discharges and improper disposal into the storm sewer
- (1) description of program to include inspections, ordinances, and enforcement
 - (2) field screening program
 - (3) procedures to investigate parts of the system with suspected illicit discharges and/or improper disposal "where a reasonable potential of containing illicit discharges" has been indicated
 - (4) procedures to prevent, contain, and respond to spills
 - (5) program to get the public to report spills
 - (6) educational and public information programs to promote proper management and disposal of oil and toxic materials

**APPENDIX 2
(Cont'd.)**

	(7)	program to limit sanitary sewer seepage into the separate storm sewer
(C)		Program to monitor and control pollutants from municipal landfills, hazardous waste treatment, disposal and recovery facilities, Title III, Section 313 facilities, and other municipally determined priority industries
	(1)	identify priorities and procedures for inspections and establish and implement control measures
	(2)	monitoring program for above industries
(D)		Program to implement and maintain structural and non-structural BMP's at construction sites
	(1)	procedures for site planning which incorporate consideration of potential water quality impacts
	(2)	description of requirements for non-structural and structural best management practices
	(3)	description of procedures for identifying priorities for inspecting sites and enforcing control measures
	(4)	educational and training measures for construction site operators

(v) *Assessment of controls*

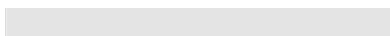
(vi) *Fiscal analysis*

(vii) *Coordination of co-applicants*

(viii) *Exclusion of operators*

(e) *Application deadlines*

(f) *Petitions*



APPENDIX 3

40 CFR 122.26(d)(2)

(iv) *Proposed management program.*

A proposed management program covers the duration of the permit. It shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering, methods and such other provisions which are appropriate. The program shall also include a description of staff and equipment available to implement the program. Separate proposed programs may be submitted by each coapplicant. Proposed programs may impose controls on a system-wide basis, a watershed basis, a jurisdiction basis, or on individual outfalls. Proposed programs will be considered by the Director when developing permit conditions to reduce pollutants in discharges to the maximum extent practicable. Proposed management programs shall describe priorities for implementing controls. Such programs shall be based on:

(A) A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls. At a minimum, the description shall include:

(1) A description of maintenance activities and a maintenance schedule for structural controls to reduce pollutants (including floatables) in discharges from municipal separate storm sewers;

(2) A description of planning procedures including a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment. Such plan shall address controls to reduce pollutants in discharges from municipal separate storm sewers after construction is completed. (Controls to reduce pollutants in discharges from municipal separate storm sewers containing construction site runoff are addressed in paragraph (d)(2)(iv)(D) of this section;

(3) A description of practices for operating and maintaining public streets, roads and highways and procedures for reducing the impact on receiving waters of discharges from municipal storm sewer systems, including pollutants discharged as a result of deicing activities;

(4) A description of procedures to assure that flood management projects assess the impacts on the water quality of receiving water bodies and that existing structural flood control devices have been evaluated to

**APPENDIX 3
(Cont'd.)**

determine if retrofitting the device to provide additional pollutant removal from storm water is feasible;

(5) A description of a program to monitor pollutants in runoff from operating or closed municipal landfills or other treatment, storage or disposal facilities for municipal waste, which shall identify priorities and procedures for inspections and establishing and implementing control measures for such discharges (this program can be coordinated with the program developed under paragraph (d)(2)(iv)(C) of this section); and

(6) A description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides and fertilizer which will include, as appropriate, controls such as educational activities, permits, certifications and other measures for commercial applicators and distributors, and controls for application in public right-of-ways and at municipal facilities.

(B) A description of a program, including a schedule, to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer. The proposed program shall include:

(1) A description of a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal separate storm sewer system; this program description shall address all types of illicit discharges, however, the following category of non-storm water discharges or flows shall be addressed where such discharges are identified by the municipality as sources of pollutants to waters of the United States: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)) to separate storm sewers, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water (program descriptions shall address discharges or flows from fire fighting only where such discharges or flows are identified as significant source of pollutants to waters of the United States);

(2) A description of procedures to conduct on-going field screening activities during the life of the permit, including areas or locations that will be evaluated by such field screens;



**APPENDIX 3
(Cont'd.)**

- (3) A description of procedures to be followed to investigate portions of the separate storm sewer system that, based on the results of the field screen, or other appropriate information, indicate a reasonable potential of containing illicit discharges or other sources of non-storm water (such procedures may include sampling procedures for constituents such as fecal coliform, fecal streptococcus, surfactants (MBAS), residual chlorine, fluorides and potassium, testing with fluorometric dyes; or conducting in storm sewer inspections where safety and other considerations allow. Such description shall include the location of storm sewers that have been identified for such evaluation);
- (4) A description of procedures to prevent, contain, and respond to spills that may discharge into the municipal separate storm sewer;
- (5) A description of a program to promote, publicize, and facilitate public reporting of the presence of illicit discharge or water quality impacts associated with discharges from municipal separate storm sewers;
- (6) A description of educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials; and
- (7) A description of controls to limit infiltration of seepage from municipal sanitary sewers to municipal separate storm sewer systems where necessary;
- (C) A description of a program to monitor and control pollutants in storm water discharges to municipal systems from municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), and industrial facilities that the municipal permit applicant determines are contributing a substantial pollutant loading to the municipal storm sewer system. The program shall:
- (1) Identify priorities and procedures for inspections and establishing and implementing control measures for such discharges;
- (2) Describe a monitoring program for storm water discharges associated with the industrial facilities identified in paragraph (d)(2)(iv)(C) of this section, to be implemented during the term of the permit, including the submission of quantitative data on the following constituents: any pollutants limited in effluent guidelines subcategories, where applicable; any pollutant listed in an existing NPDES permit for a facility; oil and grease, COD, pH, BOD5, TSS, total phosphorus, total Kjeldahl nitrogen,

**APPENDIX 3
(Cont'd.)**

nitrate plus nitrite nitrogen, and any information on discharges required under 40 CFR 122.21(g)(7)(iii) and (iv).

(D) A description of a program to implement and maintain structural and non-structural best management practices to reduce pollutants in storm water runoff from construction sites to the municipal storm sewer system, which shall include:

- (1)** A description of procedures for site planning which incorporate consideration of potential water quality impacts;
- (2)** A description of requirements for non-structural and structural best management practices;
- (3)** A description of procedures for identifying priorities for inspecting sites and enforcing control measures which consider the nature of the construction activity, topography, and the characteristics of soils and receiving water quality; and
- (4)** A description of appropriate educational and training measures for construction site operators.



APPENDIX 4

APPLICATION REQUIREMENTS FOR LARGE AND MEDIUM MUNICIPAL SEPARATE STORM SEWER DISCHARGES 40 CFR 122.26(d)

PART 1

CFR PART	GENERAL REQUIREMENTS	Data Provided?	
		Yes	No
122.26(d)(1)(i)	<u>General information</u>		
	Applicant's name		
	Applicant's address		
	Telephone number of contact person		
	Ownership status / State or local Gov't. agency		
122.26(d)(1)(ii)	<u>Legal authority</u>		
	Description of exiting legal authority:		
	Copies of relevant State Statutes		
	Copies of local ordinances		
	Constraints preventing enforcement		
	Additional authorities needed to meet (d)(2)(i)		
	Schedule to see such additional authority		
122.26(d)(1)(iii)	<u>Source identification</u>		
122.26(d)(1)(iii)(A)	Historic use of ordinances and controls		
122.26(d)(1)(iii)(B)	USGS 7.5 minute topographic map:		
122.26(d)(1)(iii)(B)(1)	Location of known storm sewer outfalls discharging to waters of US		
122.26(d)(1)(iii)(B)(2)	Description of land use activities:		
	Divisions indicating residential, commercial, etc.		
	Estimates of population densities		
	Projected growth for 10 year period		
	Estimate of average runoff coefficient		
122.26(d)(1)(iii)(B)(3)	Location / description of activities of operating or closed municipal landfills		
122.26(d)(1)(iii)(B)(4)	Location and permit number of NPDES discharges to municipal storm sewer		
122.26(d)(1)(iii)(B)(5)	Location of major structural controls for storm water, i.e. basins and filters		
122.26(d)(1)(iii)(B)(6)	Identification of public parks, recreational areas, and other open lands		
122.26(d)(1)(iv)	<u>Discharge characterization</u>		
122.26(d)(1)(iv)(A)	Monthly mean rain and snowfall estimates and monthly average number of storm events		
122.26(d)(1)(iv)(B)	Existing quantitative data:		
	Volume and quality of discharges		
	Description of outfalls sampled		
	Sampling procedures		
	Analytical methods used		
122.26(d)(1)(iv)(C)	List of water bodies receiving discharges from storm sewers		
	Description of known water quality impacts:		
122.26(d)(1)(iv)(C)(1)	Assessed and reported in Section 305(b) reports submitted by the State		
122.26(d)(1)(iv)(C)(2)	Listed under Sections 304(l)(1)(A) or (B) of the CWA		
122.26(d)(1)(iv)(C)(3)	Listed in State Nonpoint Source Assessments		
122.26(d)(1)(iv)(C)(4)	Identified by eutrophic condition of lakes listed in State reports		
122.26(d)(1)(iv)(C)(5)	Areas of concern of Great Lakes		NA
122.26(d)(1)(iv)(C)(6)	Designated estuaries under the National Estuary Program		NA
122.26(d)(1)(iv)(C)(7)	Recognized by applicant as highly valued or sensitive waters		
122.26(d)(1)(iv)(C)(8)	Defined by State or US Fish and Wildlife Service as wetlands		
122.26(d)(1)(iv)(C)(9)	Found to have pollutants in sediments, fish tissue, or biosurveys		

APPENDIX 4 (Cont'd.)

PART 1 (Cont'd. 2)

122.26(d)(1)(iv)(D) Field screening results for detection of illicit connections and illegal dumping for major outfalls:

Narrative description of visual observations at screening points or outfalls
If flow observed, 2 samples during 24-hour period at a 4-hour interval
Narrative description of color, odor, turbidity, oil, and scum
Narrative description of results of field analyses for:

pH
Chlorine, Ttl.
Copper, Ttl.
Phenol, Ttl.
Detergents
Flow rate

Field screening points to be established based on:

- 122.26(d)(1)(iv)(D)(1) N-S and E-W 1/4 mile grid system overlaying map of municipal storm sewer system
122.26(d)(1)(iv)(D)(2) All cells containing segments of sewer system must contain 1 sampling point
122.26(d)(1)(iv)(D)(3) Screening points to be located downstream of suspected illegal or illicit activity
122.26(d)(1)(iv)(D)(4) Screening points should be located at farthest point downstream in segment
122.26(d)(1)(iv)(D)(5) Hydrological conditions, drainage area, pop. and traffic density, land use, etc.
122.26(d)(1)(iv)(D)(6) Large system: 500 screening points, Medium system: 250 screening points maximum
122.26(d)(1)(iv)(D)(7) Large system: 500 major outfalls, Medium system: 250 major outfalls maximum

	NA

122.26(d)(1)(iv)(E) Information and proposed program to meet requirements of 122.26(d)(2)(iii):

Description of 5 to 10 representative outfalls designated by Director
Description of why these outfalls are representative of the system
Seasons during which sampling is intended
Description of the sampling equipment
Proposed representative outfalls should reflect water quality concerns

122.26(d)(1)(v) Management programs

122.26(d)(1)(v)(A) Description of existing management programs to control pollutants from sewers:

Information on existing structural and source controls
Such controls may include, but are not limited to:

Procedures to control pollution from construction activities
Floodplain management controls
Wetland protection measures
BMP's for new subdivisions
Emergency spill response programs

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122.26(d)(1)(v)(B) Description of existing program to identify illicit connections to the sewers

NA	
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Description should include:

Inspection procedures and methods for detecting and preventing illicit discharges
Description of areas where this program has been implemented

NA	
NA	

122.26(d)(1)(vi) Fiscal resources

122.26(d)(1)(vi)(A) Description of financial resources available to municipality to complete Part 2 of permit application
Description of municipality's budget for existing storm water programs:

Overview of municipality's financial resources and budget
Overall indebtedness and assets of municipality
Sources of funds for storm water program

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NA	
NA	

APPENDIX 4 (Cont'd.)

APPLICATION REQUIREMENTS FOR LARGE AND MEDIUM MUNICIPAL SEPARATE STORM SEWER DISCHARGES 40 CFR 122.26(d)

PART 2

CFR PART	GENERAL REQUIREMENTS	Data Provided?	
		Yes	No
122.26(d)(2)(i)	<u>Adequate legal authority</u>		
	Demonstrate control of quantity and quality of industrial discharges to storm sewers by:		
122.26(d)(2)(i)(A)	Permit, ordinance, contract, order or similar means		
122.26(d)(2)(i)(B)	Prohibiting illicit discharges to the storm sewer by ordinance or similar means		
122.26(d)(2)(i)(C)	Ordinance, order or similar means controlling spills and dumping		
122.26(d)(2)(i)(D)	Interagency agreements wherein coapplicants control their contribution to the sewer system		
122.26(d)(2)(i)(E)	Demonstrating it can require compliance with permits, ordinances, contracts, etc.		
122.26(d)(2)(i)(F)	Demonstrating it can carry out inspection and surveillance necessary to ensure compliance		
122.26(d)(2)(ii)	<u>Source identification</u>		
	Provide location of major outfalls to waters of US not reported in Part 1, 122.62(d)(1)(iii)(B)(1)		
	Provide an inventory of industrial facilities by watershed which may discharge to the sewer system		
122.26(d)(2)(iii)	<u>Characterization data</u>		
	When quantitative data is required under (d)(2)(iii)(A), samples must meet 40 CFR 122.21(g)(7) reqmnt's.		
	When quantitative data is required under (d)(2)(iii)(A), samples must meet 40 CFR 136 requirements		
122.26(d)(2)(iii)(A)	Quantitative data from representative outfalls in Part 1 to be developed as follows:		
122.26(d)(2)(iii)(A)(1)	Samples collected from 3 storm events occurring at least 1 month apart		
122.26(d)(2)(iii)(A)(2)	Narrative description of date, duration, rainfall amount, and time since last storm event		
122.26(d)(2)(iii)(A)(3)	Quantitative data to be supplied for:		
	Organic pollutants in Table II, Appendix D, 40 CFR 122		
	Toxic metals, cyanide, and total phenols from Table III, Appendix D, 40 CFR 122		
	TSS		
	TDS		
	COD		
	BOD5		
	Oil and Grease		
	Fecal coliform		
	Fecal streptococcus		
	pH		
	Total Kjeldahl nitrogen		
	Nitrate plus nitrite		
	Dissolved phosphorus		
	Total ammonia plus organic nitrogen		
	Total phosphorus		
122.26(d)(2)(iii)(A)(4)	Additional quantitative data required by the Director for determining permit conditions		NA
122.26(d)(2)(iii)(B)	Estimates of annual pollutant load of cumulative discharges to waters of US		
	Estimates of event mean concentrations of the cumulative discharges		
	These estimates shall include the following constituents:		
	BOD5		
	COD		
	TSS		
	Dissolved solids		
	Total nitrogen		
	Total ammonia plus organic nitrogen		
	Total phosphorus		
	Dissolved phosphorus		
	Cadmium		
	Copper		
	Lead		
	Zinc		

APPENDIX 4 (Cont'd.)

PART 2 (Cont'd. 2)

122.26(d)(2)(iii)(C)	Schedule for providing est's. of seasonal pollutant load for major outfalls for constituents detected in (d)(2)(iii)(A)	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iii)(D)	Proposed monitoring program for representative data collection for the term of the permit including:	
	Description of outfalls or field screening points	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	Why the location is representative	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	Frequency of sampling	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	Parameters to be sampled	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	Description of sampling equipment	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv) <u>Proposed management program</u>		
	Proposed management program shall include the following:	
	Comprehensive planning process which involves public participation and inter-gov't. coordination	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	A description of staff and equipment available to implement the program	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	A description of the priorities for implementing controls	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(A)	Description of structural and source controls for reducing pollutants to the storm sewer including:	
	Description of structural and source controls	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	Estimates of expected reduction of pollutant loads	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	Proposed schedule for implementing structural and source controls	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(A)(1)	Description of maintenance activities and schedules for control measures	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(A)(2)	Planning procedures to develop, implement, and enforce, post-construction controls	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(A)(3)	Description of practices for street maintenance, including de-icing practices	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(A)(4)	Procedures to assure that flood management projects assess water quality impacts	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(A)(5)	Program to monitor runoff from operating or closed landfills and other TSD facilities	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(A)(6)	Program to reduce runoff to the MEP, associated with herbicides, pesticides, and fertilizers	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(B)	Description of a program, including a schedule, to detect and remove illicit and improper discharges to sewer:	
122.26(d)(2)(iv)(B)(1)	Description of a program including inspections, to implement ordinances or orders	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(B)(2)	Description of procedures to conduct on-going field screening activities	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(B)(3)	Procedures to investigate illicit discharges where reasonable potential exists	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(B)(4)	Procedures to prevent, contain, and respond to spills	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(B)(5)	Program to get the public to report spills	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(B)(6)	Educational programs to promote proper mgmnt. and disposal of oil and toxic materials	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(B)(7)	Program to limit sanitary sewer seepage into the separate storm sewer	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(C)	Program to monitor and control runoff from TSD and industrial facilities subject to SARA III, Section 313:	
122.26(d)(2)(iv)(C)(1)	Identify priorities and procedures for inspections and control measures for such discharges	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(C)(2)	Describe monitoring program for industrial facilities subject to SARA III, Section 313	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	Program should include submission of quantitative data on the following:	
	Pollutants limited in effluent limited guidelines	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	Pollutants listed in an existing NPDES permit	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	Oil and grease	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	COD	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	pH	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	BOD5	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	TSS	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	Total phosphorus	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	Total Kjeldahl nitrogen	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	Nitrate plus nitrite nitrogen	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
	40 CFR 122.21(g)(7)(iii) and (iv) toxics	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(D)	Description of a program to implement and maintain BMP's to reduce construction site runoff to sewer	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(D)(1)	Procedures for construction site planning to consider water quality impacts	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(D)(2)	Description of requirements for structural and non-structural BMP's	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(D)(3)	Procedures for identifying priorities for site inspection and enforcement	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(iv)(D)(4)	Educational and training measures for construction site operators	<div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div> <div style="width: 20px; height: 15px; display: inline-block;"></div>
122.26(d)(2)(v) <u>Assessment of controls</u>		
	Estimated reduction in pollutant loadings to storm sewer as a result of storm water quality mgmnt. program	<div style="width: 20px; height: 15px; display: inline-block;"></div> <div style="background-color: #cccccc; width: 20px; height: 15px; display: inline-block;"></div>

APPENDIX 4 (Cont'd.)

PART 2 (Cont'd. 3)

122.26(d)(2)(vi) Fiscal analysis

Analysis of capital and operation and maintenance expenditures necessary for (d)(2)(iii) and (iv)

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Description of the source of funds for projects
Legal restrictions on the use of funds

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122.26(d)(2)(vii) Coordination of co-applicants

Description of roles and responsibilities of co-applicants
Procedures to ensure effective co-applicant coordination

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122.26(d)(2)(viii) Exclusion of operators

Director may exclude certain operators from certain (d)(1) and (d)(2) requirements where applicable

	NA
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APPENDIX 5

SCHEDULE FOR DEVELOPMENT AND IMPLEMENTATION OF SWMP ELEMENTS AND PROGRAMS

PROGRAM OF STRUCTURAL AND SOURCE CONTROLS FOR REDUCING POLLUTANTS TO THE MUNICIPAL SEPARATE STORM SEWER SYSTEM 122.26(d)(2)(iv)(A)

The Residential and Commercial Program (RC)

Code	Activity	Schedule
<u>Inventory</u>		
RC-1a	- Develop an inventory database to prioritize maintenance based on existing drainage and roadway infrastructure, outfalls identified during illicit connections screening, and any new storm water controls constructed.	60 months
<u>Procedures</u>		
RC-1b	- Review existing maintenance activities for water quality benefits and modify if necessary. - Develop procedures for an appropriate inspections and maintenance program for existing public infrastructure. - Develop enforcement options to be used to encourage and direct the maintenance of private infrastructure. - Develop training and cross-training programs for inspection and maintenance staff. - Modify existing detention policy to set maintenance criteria for facilities privately owned.	Immediately
		6 mths. beginning 2nd half of yr. 1
		12 months
		12 months
<u>Maintenance</u>		
RC-1c	- Continue existing maintenance activities and incorporate resultant procedures of RC-1b.	Immediately
<u>Characterization Monitoring</u>		
RC-2a	- Monitoring of seasonal storm events at five (5) sampling sites used for discharge characterization, sample analysis, and coordination with Tennessee Department of Environment and Conservation (TDEC). - Volunteer Best Management Practice (BMP) case studies.	48 mths. beg. year 2
<u>Master Planning</u>		
RC-2b	-Develop master plan.	48 mths. beg. yr. 2
<u>Ambient Monitoring</u>		
RC-2c	-Assist in the collection of ambient water quality data from local streams. Data may be obtained in part from TDEC and other authorities where available.	60 months
<u>Roads</u>		
RC-3	- Review maintenance and construction of roads for water quality benefits. -Implement any needed changes to roads for water quality benefits.	12 months
		12 mths. beg. yr. 2
<u>Flood Control</u>		
RC-4a	- Develop design guidance that is acceptable to TDEC for stream bank and invert stabilization and prioritize Capital Improvement Projects (CIP's) for erosion prone areas.	18 months
<u>Design Criteria</u>		
RC-4b	- Develop water quality design guidance for flood control projects.	12 mths. beg. yr. 2
<u>Landfills</u>		
RC-5	- Landfills will be addressed under the industrial program.	See Ind. & Related Facilities Program
<u>Pesticide, Herbicide, and Fertilizer</u>		
RC-6	- Develop public education program on proper storage, disposal, and possible harmful effects of pesticides, herbicides, and fertilizers on local streams.	60 months
<u>Annual Reporting</u>		
RC-7	- Annual report development on what was accomplished in the commercial and residential program and a status report of the program as a whole.	2nd half of each yr.

APPENDIX 5 (Cont'd.)

SCHEDULE FOR DEVELOPMENT AND IMPLEMENTATION OF SWMP ELEMENTS AND PROGRAMS

PROGRAM TO DETECT AND REMOVE ILLICIT AND IMPROPER DISCHARGES TO THE MUNICIPAL STORM SEWER SYSTEM 122.26(d)(2)(iv)(B)

The Illicit Discharges and Improper Disposal Program (ILL)

Code	Activity	Schedule
<u>Ordinances</u>		
ILL-1	- Enhance current ordinances to explicitly address illicit connections and illegal dumping to the municipal storm sewer system.	18 months
<u>Field Screening</u>		
ILL-2	- Field screening of 104 sites identified in Part 1 of application with concentrations above the action limit for guidance on where to proceed with illicit connection detection tasks. - Additional outfalls will be identified in the areas that were not included in Part 1 and 2 of the application. - Additional outfalls will be screened and remaining 396 sites tested periodically.	42 mths. beginning 2nd half of yr. 2
<u>Connection / Detection</u>		
ILL-3	- Inventory the conveyance system upstream of outfalls with potential illicit connection sources per complaints or field screening data, identify sources, and eliminate sources.	42 mths. beginning 2nd half of yr. 2
<u>Prevention, Containment, and Response</u>		
ILL-4	- Describe all spills over the previous 5 to 10 years depending on data available.	6 mths. beg. yr. 2
<u>Public Reporting</u>		
ILL-5	- Develop public awareness program to enhance public reporting of illicit dischargers.	60 months
<u>Educational Activities</u>		
ILL-6a	- Develop and distribute educational materials through the school systems for proper disposal of used oil and toxic materials.	60 months
<u>Public Education</u>		
ILL-6b	- Develop and implement public information activities for proper disposal of used oil and toxic materials.	60 months
<u>Used Oil and Household Chemicals</u>		
ILL-6c	- Develop a report of all the locations for used oil turn-in and recommend additional locations. Incentives for new stations should be available.	60 months
<u>Infiltration from Sanitary to Storm Sewer</u>		
ILL-7	- No action required unless identified as a significant problem through the annual reports.	As necessary
<u>Annual Report</u>		
ILL-8	- Annual reporting to TDEC to document yearly progress, permit modifications, and data.	2nd half of each yr.

APPENDIX 5 (Cont'd.)

SCHEDULE FOR DEVELOPMENT AND IMPLEMENTATION OF SWMP ELEMENTS AND PROGRAMS

PROGRAM TO MONITOR AND CONTROL RUNOFF FROM TSD AND INDUSTRIAL FACILITIES SUBJECT TO SARA III, SECTION 313 122.26(d)(2)(iv)(C)

The Industrial and Related Facilities Program (IN)

Code	Activity	Schedule
<u>Site Database</u>		
IN-1a	- Develop database including NPDES storm water permits, municipal landfills, hazardous waste treatment, disposal and recovery facilities, and industrial facilities subject to 313.	60 months
<u>Procedures</u>		
IN-1b	- Develop procedures to be used in performing site inspections. - Identify modifications to existing inspection programs. - Develop inspector's manuals and checklists.	54 mths. beginning 2nd half of yr. 1
<u>Training</u>		
IN-1c	- Develop and implement training program for site inspectors.	54 mths. beginning 2nd half of yr. 1
<u>Inspections</u>		
IN-1d	- Perform site inspections based on problem-oriented priorities.	48 mths. beg. yr. 2
<u>Runoff Management</u>		
IN-1e	- Develop a program for implementation of storm water controls for these industries.	60 months
<u>Ordinances</u>		
IN-1f	- Develop an ordinance to permit right-of-entry for inspectors. Develop an ordinance that would empower the City to require BMP's, spill response plans, materials management plans, storm water quality monitoring, and annual reporting from these industries.	18 months
<u>Monitoring</u>		
IN-2a	- Develop a program to allow storm water monitoring from four to eight industrial sites during each year.	60 months
<u>Monitoring Database</u>		
IN-2b	- Results of all industrial monitoring will be entered into the industrial database. - These data include dates, storm characteristics, and sample analyses.	48 mths. beginning year 2
<u>Annual Reporting</u>		
IN-3	- Annual reporting to TDEC concerning the progress of this program.	2nd half of each yr.

APPENDIX 5 (Cont'd.)

SCHEDULE FOR DEVELOPMENT AND IMPLEMENTATION OF SWMP ELEMENTS AND PROGRAMS

PROGRAM TO IMPLEMENT AND MAINTAIN BMP PLANS TO REDUCE CONSTRUCTION SITE RUNOFF TO THE MUNICIPAL STORM SEWER 122.26(d)(2)(iv)(D)

The Construction Site Runoff Program (CS)

Code	Activity	Schedule
	<u>Erosion Control Guide, Checklist and Training</u>	
CS-1a	- Develop an erosion control guide containing requirements, standards, and design details for BMP plans to use on construction sites to reduce pollutants in storm water runoff.	60 months
	<u>Plan Review</u>	
CS-1b	- Review, revise and strengthen regulations and ordinances for site planning procedures and practices. - Monitor and evaluate need for additional staff to review erosion control plans.	24 months
	<u>BMP Training</u>	
CS-2	- Provide training to City staff in BMP planning and implementation.	12 months
	<u>Ordinance and Enforcement</u>	
CS-3a	- Review, revise and strengthen existing regulations and ordinances for requirements of construction site BMP plans. - Develop and implement measures to enforce compliance by construction site operators and responsible parties within provisions of the permit.	12 mths. beginning 2nd yr.
	<u>Inspector Training</u>	
CS-3b	- Provide training to construction site inspectors.	60 months
	<u>Workload Review</u>	
CS-3c	- Review current and historic inspection workload to evaluate need for additional staff.	60 months
	<u>Site Operator Training</u>	
CS-4	- Provide workshops for site operators to attend that demonstrate types, methods, and implementation procedures for erosion and sediment control measures.	60 months
	<u>Annual Reporting</u>	
CS-5	- Annual reporting to TDEC concerning the progress of this program.	2nd half of each yr.

APPENDIX 6

Storm Water Application Regulations, November 16, 1990 on Permit Sampling Requirements

The following are excerpts from the EPA storm water application rule of November 16, 1990 on the matter of outfall sampling and ambient stream sampling:

40 CFR 122.26(d)(2)(iii) **Characterization data**.....The applicant must provide information characterizing the quality and quantity of discharges covered in the permit application including:

(C) A proposed schedule to provide estimates for each major outfall identified in either paragraph (d)(2)(ii) or (d)(1)(iii)(B)(1) of this section of the seasonal pollutant load and of the event mean concentration of a representative storm for any constituent detected in any sample required under paragraph(d)(2)(iii)(A) of this section; and

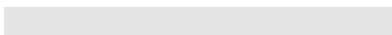
(D) A proposed monitoring program for representative data collection for the term of the permit that describes the location of outfalls or field screening points to be sampled (or the location of in-stream stations), why the location is representative, the frequency of sampling, parameters to be sampled, and a description of sampling equipment.

40 CFR 122.26(d)(2)(iv) **Proposed management program**. A proposed management program covers the duration of the permit....Such programs shall be based on:

(B) A description of a program, including a schedule, to detect and remove...illicit discharges and improper disposal into the storm sewer. The proposed program shall include:...

(2) A description of procedures to conduct on-going field screening activities during the life of the permit, including areas or locations that will be evaluated by such field screens;...

(C)(2) Describe a monitoring program for storm water discharges associated with industrial facilities...including the submission of quantitative data on the following constituents...



**APPENDIX 6
(Cont'd.)**

Following are descriptions of several types of sampling.

Field screening --

The storm sewer system is inspected in dry weather for the presence or indication of non-storm water discharges. Inspections are done both at points within the conveyance system and at outfalls from the storm sewer to waters of the State. Any discovered discharges are sampled for several parameters as a means to find the possible source(s) of the discharge.

Accurate flow measurements are not usually done, rather rough estimates or narrative descriptions.

Storm water sampling at MS4 outfalls --

Discharges of storm water are sampled at points where storm water exits the MS4 and enters waters of the State.

This sampling describes the urban runoff prior to its entering receiving streams. Along with flow measurements, these data can quantify loadings of pollutants to receiving streams.

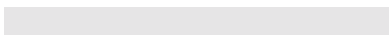
Both chemical-specific sampling or bioassays might be conducted at MS4 outfalls.

Instream sampling during storm events --

Samples for chemical analysis are taken in-stream during a rain event. Such sampling shows immediate effects of storm water runoff on a receiving stream.

Bioassessments of streams --

Streams are investigated for habitat and amount and diversity of plant and animal life. An analysis of the plant and animal life, which are exposed to a stream for months and years, will indicate what the water quality has been for months prior to sampling. This provides different information than sampling for specific chemicals.



APPENDIX 7

Storm Water Application Regulations, November 16, 1990 **on** **Reporting Requirements**

NPDES rules at 40 CFR 122.42 specify special reporting conditions for MS4 permittees. 122.42(c) reads:

The operator of a large or medium municipal separate storm sewer system of a municipal separate storm sewer that has been designated by the Director under 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such system: The report shall include:

- (1) The status of implementing the components of the storm water management program that are established as permit conditions;
- (2) Proposed changes to the storm water management programs that are established as permit condition. Such proposed changes shall be consistent with 122.26(d)(2)(iii) of this part;
- (3) Revisions, if necessary to the assessment of controls and the fiscal analysis reported in the permit application under 122.26(d)(2)(iv) and (d)(2)(v) of this part;
- (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year;
- (5) Annual expenditures and budget for year following each annual report;
- (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; and
- (7) Identification of water quality improvements or degradation;...

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